Arkansas Space Grant Consortium
University of Arkansas at Little Rock
Dr. M. Keith Hudson
(501) 569-8212
Asgc.ualr.edu
Grant Number: NNX01AL28H

PROGRAM DESCRIPTION

The National Space Grant College and Fellowship Program consists of 52 state-based, university-led Space Grant Consortia in each of the 50 states plus the District of Columbia and the Commonwealth of Puerto Rico. Annually, each consortium receives funds to develop and implement student fellowships and scholarships programs; interdisciplinary space-related research infrastructure, education, and public service programs; and cooperative initiatives with industry, research laboratories, and state, local, and other governments. Space Grant operates at the intersection of NASA's interest as implemented by alignment with the Mission Directorates and the state's interests. Although it is primarily a higher education program, Space Grant programs encompass the entire length of the education pipeline, including elementary/secondary and informal education. The Arkansas Consortium is a Capability Enhancement Consortium funded at a level of $430,000 for fiscal year 2011.

PROGRAM GOALS

Educational Outcome 1 Goals (Metrics in parentheses)

1. Fund Research Infrastructure Grants to affiliate institutions (20).
2. Fund Student Fellowship/Scholarship Grants (32).
3. Fund STEM/MSI Scholarship/Fellowships (10)
4. Fund Workforce Development Fellowships of $6,500 (6).
5. Fund Collaborative Research Programs (5)
6. Fund Aeronautic Enhancement Program two-year certificate student awards (6).
7. Continue to collaborate with the National Space Grant Foundation's program for longitudinal tracking of awardees, and participate fully in reporting results to NASA.

Educational Outcome 2 Goals

1. Fund Mini-Grants to K-12 educators in Arkansas (Mini 20, Outreach 5)
2. Fund an Outreach Rocket Program (1)
3. Offer applications and funding for students to be accepted to a NASA Academy, a Summer Internship at a NASA Center, Graduate Student Research Program, or summer employment positions with NASA affiliated contractors in or out of the state. (as needed)

Educational Outcome 3 Goals

1. Fund Guest Lecturers from STEM disciplines to make presentations for the General Public at affiliate campuses. (1)
2. Hold the 20th Annual Symposium so students and faculty can present their research to their peers and other members of the community.
3. Maintain the ASGC website as needed.
4. Continue active involvement with University Affairs Offices at all the NASA centers.

PROGRAM/PROJECT BENEFIT TO OUTCOME (1,2, OR 3)

Outcome 1:

- Graduate student Daniel Rucker designed and is installing an amateur radio antenna to communicate with the International Space Station and low earth orbit satellite links. This project will establish opportunities for multiple levels of education on satellites, the ISS and other NASA missions.
- A group of seven students from Arkansas Tech University traveled to Marshall Space Flight Center to visit the X-Ray and Cryogenic Facility and the James Webb Space Telescope testing area
- Three of our current Collaborative Research Program PI's have received NASA ESPCoR RID funding.
- Dr. Courtney Hatch, Hendrix College has been awarded an Atmospheric Chemistry Program via the National Science Foundation in the amount of $168,000 and a Single Investigator Cottrell College Science Award, Research Corporation in the amount of $45,000. All based on her original research funded through Space Grant
- Dr. Robert Dunn, Hendrix College has been awarded a multiyear award from NSF Earthscope. The materials funded by Space Grant will allow us to tie the ring laser results with the Earthscope barometer results.

Outcome 2:

- 10th grader Liam Gunter, attending Pottsville High School placed 2nd in the Central Ark. Regional Science Fair with his project "Mapping the Lectromagnetic Spectrum to Near Space". His project was based on data collected during a k-12 balloonsat mission, which he participated in as a researcher. He will compete again in May at the State Science Fair. This young man has plans to pursue a space science career and is an exceptionally bright student.
- K-12 Educators, Ms. Heather Brown, Ms. Ruth Brewer, and Ms. Edie Flores were selected to attend Liftoff 2011 Summer Institute Earth's Reflections Program Sponsored by Texas Space Grant Consortium

Outcome 3:

- The 20th ASGC Symposium was held at the Winthrop Rockefeller Institute at Petit Jean Mountain. Attendance was the largest it has ever been at 152. Dr. Herman Rediess was our Keynote speaker. Dr. Rediess retired from the

Department of Homeland Security where he was the Counter Man-Portable Air Defense System (MANPADS) Program Executive, Chief Systems Engineer, and the Counter Improvised Explosive Devices (CIED) Branch Chief. Prior to joining DHS, he was a senior executive at FAA, NASA and SPARTA, Inc, a small aerospace company. His 25 year career at NASA covered aeronautics and space research and technology. During his career was the lead or member of over 20 NASA, FAA, DOD and International advisory R&T committees. In 2005 he was the NASA Lead for the Council of Deans, a subcommittee to the NASA Aeronautics Research Advisory Committee, composed of 25 Deans of Engineering across a broad range of universities. He talk was titled "A Personal History of Flight Research and View for Aviation Unleashed". He also gave a presentation at the University of Arkansas, Fayetteville.

PROGRAM ACCOMPLISHMENTS

Outcome 1:

With our FY11 base funding ASGC was able to exceed our goals in most of our Outcome 1 areas. ASGC funded 37 Research Infrastructure awards, 5 Student Fellowships, 55 Student Scholarship and 6 Workforce Development Scholarships. Four additional Workforce Development Scholarships were funded from state matching funds. Five Collaborative Research Projects were funded, on which 11 faculty and four graduate students and 11 undergraduate students were funded. Our goals for these programs were 27, 39 and 6 respectively.

ASGC funded six Aeronautic Enhancement Program two-year certificate student awards this year. Partnering with the Arkansas Aerospace Training Consortium, ASGC has been able to provide scholarships to the most qualified students in this program.

The STEM/MSI program implemented a few years ago has proven to be beneficial to our program. This year there were 11 awards and 12 travel awards made. This has doubled our participation from last year. This program specifically helps our underrepresented minority groups and female participation outreach.

In FY10 ASGC added John Brown University (JBU) as a non-voting member to our affiliation. JBU is the only traditional 4-year college/university in Arkansas that is not a fully funded, voting member. Due to budget constraints the ASGC program office is not able to bring them to that level at this time. This campus has participated in some ASGC's statewide funding opportunities and has been awarded two STEM/MIS awards. They have also received funding from the ESMD NASA Lunabotics Mining Competition.

Collaboration with the National Space Grant Foundation's program for longitudinal tracking of awardees has proven to be a great investment. The ASGC program office receives monthly reports from past awardees on their current standing in education or employment.

Outcome 2:

Our K-12 programs have continued its popularity this year. Six Outreach Grants, thru which 9 teachers received funding for professional development. 22 Mini-Grants were funded, of which 3 went support our partnership with the Civil Air Patrol. Seven CAP-Aerospace Educators Memberships were funded for teachers who requested them.

The Civil Air Patrol has been a very active member in our Outreach program. Capt. Michael Maynard has started an afterschool Lego NXT Robotics Program with Ms. Tammy Leker at Crestwood Elementary School for student 4-6th grades.

ASGC funded four additional summer NASA internships with state matching funds provided by the Arkansas Science and Technology Authority. Two of the four were found using the OSSI: SOLAR system. The other two were NASA Academy placements.

Outcome 3:

The 20th ASGC Symposium was held at the Winthrop Rockefeller Institute at Petit Jean Mountain. Attendance was the largest it has ever been at 152. Dr. Herman Rediess was our Keynote speaker. He talk was titled "A Personal History of Flight Research and View for Aviation Unleashed". He also gave a presentation at the University of Arkansas, Fayetteville.

ASGC updates the program website as needed. A computer specialist in the Graduate Institute of Technology at the University of Arkansas at Little Rock provides this service.

PROGRAM CONTRIBUTIONS TO PART MEASURES

- Student Data and Longitudinal Tracking: Total awards = 97; Fellowship/Scholarship = 73, Higher Education/Research Infrastructure = 24; 49 of the total award represent underrepresented minority F/S funding. Of these participants, 20 are classified as an underrepresented race and 39 are women, 10 are both underrepresented in race and gender. During the FY11 program year, 8 are pursuing advanced degrees in STEM disciplines, 1 is seeking STEM employment, 2 accepted STEM positions at NASA contractors, 22 accepted STEM positions in industry, 1 accepted a position at NASA, 3 accepted STEM positions in K-12 academia, 2 accepted STEM positions in academia, and 16 went on to positions in non-STEM disciplines. The remaining students have not yet received the degree that they were pursuing while the received their Space Grant award.

- Diversity: The Arkansas Space Grant Consortium is working to becoming a more diverse group. Last year ASGC reported only 1 female researcher. This year there are five faculty researchers. Our underrepresented minority student participation is greatly above about our state standard of 22.8% at 50.5%. Female participation is equal with state standards at 40%.

- Minority-Serving Institutions: Arkansas has only one HBCU, the University of Arkansas at Pine Bluff. UABP has become more competitive over the past few years in NASA related research, thus involving more under-served minority students.

- NASA Education Priorities: ASGC has recently involved Aeronautic Enhancement Program two-year certificate student awards. Partnering with the Arkansas Aerospace Training Consortium, ASGC has been able to provide scholarships to the most qualified students in this program. There are seven two-year campuses in the state that provide certificates for A&P mechanics and aeronautics technicians.
  The Civil Air Patrol has been a very active member in our Outreach program. Capt. Michael Maynard has started an afterschool Lego NXT Robotics Program with Ms. Tammy Leker at Crestwood Elementary School for student 4-6th grades.
  Dr. Robert "Bob" Dunn and his Space Grant awarded students are providing a summer outreach program for the Faulkner County Boys & Girls Club this summer. Funding for this program has been provided with FY11 funds. Demographic for this event will be provided at a later date.

IMPROVEMENTS MADE IN THE PAST YEAR

This year, ASGC has solidified its offering of the 2 year college A&P program scholarships, the Henderson State Aeronautics awards, and the STEM/MSI program for Arkansas. These two year college awards are the first made from Space Grant in Arkansas and are having a direct impact on the fledgling Arkansas aviation/aerospace industrial sector. This sector has been the fastest growing sector of the Arkansas economy according to our Governor's Office. Our efforts in the STEM/MSI program have offered our programs to some related fields and have brought us to additional students and increased our outreach to underrepresented minority and underprivileged groups in the state.
Our underrepresented minority participation has also increased to our state standards. The program office has promoted these underserved groups to our campus representative and they have provided excellent candidates for funding.

PROGRAM PARTNERS AND ROLE OF PARTNERS IN PROJECT EXECUTION

ASGC consist of 17 colleges and universities. A campus representative from each campus sits on our board and has a vote on all proposals funded through ASGC. To aid in this process, several state agency, non-profit organizations, and industry are allowed a voice in the voting processes. The Arkansas Aerospace Training Consortium aids ASGC in awarding the Aerospace Enhancement funds. Arkansas Science and Technology Authority provide state matching funds, and then paired with Arkansas Economic Development Commission; ASGC is able to keep our NASA project in line with state's R&D priorities.

Four-Year Higher Education Institutions (Affiliates)

Arkansas State University - Jonesboro†

Arkansas Tech University - Russellville
Harding University – Searcy*
Henderson State University - Arkadelphia
Hendrix College – Conway*
Lyon College – Batesville*
Ouachita Baptist University – Arkadelphia*
Southern Arkansas University - Magnolia
University of Arkansas, Fayetteville†
University of Arkansas at Ft. Smith
University of Arkansas at Little Rock†
University of Arkansas for Medical Sciences – Little Rock†
University of Arkansas at Monticello
University of Arkansas at Pine Bluff ‡
University of Central Arkansas - Conway
University of the Ozarks – Clarksville*

Partners in Aerospace

Arkansas Department of Aeronautics – updates on aeronautics development in Arkansas
Aerospace Education Center – meeting place and input on aerospace programs
Arkansas Department of Education – input and K-12 standards
Arkansas Department of Higher Education – input and higher education standards for the state
Arkansas Science and Technology Authority – cash matching and state Science & Technology standards
BEI Systems & Space Division – industry contact and input
Civil Air Patrol–Arkansas Wing–aerospace education, teacher/flight program cooperation

*Private Institutions
†Research/PhD Granting Institutions
‡HBCU